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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/769,047	01/30/2004	S. Brad Herner	MA-100-I	7037
33971	7590	07/12/2006	EXAMINER	
MATRIX SEMICONDUCTOR, INC. 3230 SCOTT BOULEVARD SANTA CLARA, CA 95054			CHEN, BRET P	
			ART UNIT	PAPER NUMBER

1762

DATE MAILED: 07/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/769,047

Applicant(s)

HERNER ET AL.

Examiner

B. Chen

Art Unit

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS; WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

Claims 1-16 are pending in this application.

The amendment dated 5/3/06 has been entered. The examiner appreciates the amendments to the specification and the filing of an application data sheet. In view of the amendments and the filing, the objections to the oath and specification have been withdrawn.

#### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

**Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitani et al. (5,864,161) for the reasons listed in the previous office action.**

**Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Freeman (5,096,856) in view of Mitani et al. (5,864,161) for the reasons listed in the previous office action.**

#### ***Response to Arguments***

Applicant's arguments filed 5/3/06 have been fully considered but they are not persuasive.

Applicant first argues that Mitani fails to teach depositing polysilicon at a temperature less than or equal to about 500°C (p.9) and argues that when silicon is deposited at less than that temperature, the film is usually amorphous (p.10).

Art Unit: 1762

The examiner agrees in part. It is the examiner's position that the references clearly teach the deposition of polysilicon at a reduced temperature (see col.12 of Mitani and cols.1-2 of Freeman). However, assuming arguendo, that applicant's assertion that the references do in fact teach amorphous silicon, how does the applicant's method using the same precursors and the same temperature form polysilicon? In other words, if the prior art teaches a low temperature process of forming silicon, it is not clear how the prior art forms amorphous silicon and the applicant forms polysilicon. The examiner can only assume that some critical feature is not presently recited in the instant claims.

Applicant next argues that Mitani not teach forming a polycrystalline film as deposited without a subsequent anneal (p.10 last full paragraph).

The examiner agrees in part. While the examiner does not necessarily disagree with this issue, it is noted that the instant claims to not recite the limitation of "as-deposited". As a result, the claimed process does not preclude the use of an annealing step. Hence, the applicant's arguments are not commensurate in scope with the instant claims as presently written.

Applicant argues that the prior art reference does not teach selecting dopant concentration which affects deposition rate, film quality, or crystallinity but that it is conventional to select dopant concentration depending on the desired concentration (p.11).

The examiner agrees. It does not matter why the dopant concentration is varied as long as one skilled in the art has motivation to do so. However, that being said, if the dopant concentration is critical to the formation of polysilicon at a low temperature and the applicant were to provide factual evidence showing same, withdrawal of the above art rejection will be considered.

Art Unit: 1762

Applicant next argues that Freeman and Mitani both fail to teach that phosphorus in high concentration will promote crystallization of silicon and improve deposition rate (p.12).

The examiner disagrees. When substituting one material for another, one skilled in the art knows that concentrations will be different because the size of the molecules are different. The applicant has not shown any criticality with the claimed dopant concentration. Indeed, it is possible that when doping a material, it is conventional to use the claimed range without factual evidence to the contrary.

Applicant's arguments have been considered but are not deemed persuasive.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

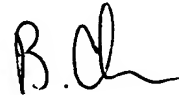
Art Unit: 1762

Any inquiry concerning this communication or earlier communications from the examiner should be directed to B. Chen whose telephone number is (571) 272-1417. The examiner can normally be reached on 7:30am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Bc  
7/6/06



**BRET CHEN**  
**SENIARY EXAMINER**